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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,952

01/22/2004

Robert Vincent

104035-00009

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45684 7590 06/22/2011

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COLUMBUS, OH 43215-2538

EXAMINER

RIGGS II, LARRY D

ART UNIT

PAPER NUMBER

1631

MAIL DATE

DELIVERY MODE

06/22/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/762,952	<b>Applicant(s)</b> VINCENT, ROBERT
	<b>Examiner</b> LARRY D. RIGGS II	<b>Art Unit</b> 1631

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 and 94-111 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 94-111 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/20/2010 has been entered.

### ***Status of Claims***

Claims 20-93 are cancelled. Claims 1-19 and 94-111 are currently pending and examined on the merits.

### ***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 and 94-111 are rejected under 35 U.S.C. 112, first paragraph, because the specification, does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

Regarding undue experimentation, *In re Wands*, 8 USPQ2d 1400, at 1404 (Fed. Cir. 1988) states:

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in *Ex parte Forman*. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. (Citations omitted).

The equations on pages 4 and 7, where the K values are provided on pages 4, 5, 7, and 8, are the only equations the specification present as being suitable for determining the amount of coliform bacteria in water. The equations on page 11, where the K values are provided on pages 11 and 12, are the only equations the specification present as being suitable for determining the amount of E.coli bacteria in water. The algorithms were developed from LANDSAT 7 ETM+ data for a July 1, 2000 overpass (page 21), where coliform was measured in samples (page 23). Furthermore, multiple regression models were constructed describing the relationship between the LANDSAT TM data and the relative coliform and E. coli concentration (pages 26-27) to obtain a best spectral ratio model shown above, which is for the calculation of coliform concentration. However, the specification provides it was unclear if the samples contained bacteria or the fecal matter in the water. And that while the wavelengths of light in bands 2, 3, and 4 are about the size of bacteria, and possible that coliform is being detected by the coliform algorithm, "it will take some lab experimentation to prove that what is being mapped by the algorithms", (page 26 – 27, paragraphs 171-172). The specification does not indicate how an equation for the calculation of coliform or E. coli can then be used to obtain an equation for the calculation of the amount of coliform or E. coli. Therefore, there is no clear indication of how

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the creation of multiple regression models is used to determine the amount of coliform or E.coli. There is clearly a lack of direction or guidance for obtaining an algorithm for determining the amount of the coliform and E.coli where light ratios are used. A great amount of experimentation would be required to apply numerous mathematical modeling techniques for deriving suitable algorithms, as suggested in paragraph 172, page 26-27.

Even if the claims were amended to recite a method of determining the amount of coliform and E.coli in water from light reflected therefrom, the claims broadly indicate that the algorithms includes the amounts of light in at least two of the wavelength ranges (claim 1). However, the algorithms are derived from a multiple regression model that is generated by using a step-wise linear regression model, with a Durbin-Watson statistical test for autocorrelation (page 22). Moreover, the amount of light at each wavelength is one that has been corrected for atmospheric haze and sensor additive offset. Clearly the algorithms used in the instant claims are limited solely to algorithms derived in such a manner, where the amount of light is corrected. There is lack of guidance for determining suitable algorithms in any other manner, and this in turn results in a great amount of experimentation to apply numerous mathematical modeling techniques.

### ***Conclusion***

No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to LARRY D. RIGGS II whose telephone number is (571)270-3062. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Larry Riggs/  
Examiner, Art Unit 1631